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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/559,646 | 12/02/2005 | Glenn William Goodall | 1063720050 (S1097) | 7269 |
| 39905 | 7590 | 11/21/2008 | | |
| ROETZEL AND ANDRESS 222 SOUTH MAIN STREET AKRON, OH 44308 | | | EXAMINER MESH, GENNADIY | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|---------------------------------------|--|
| Office Action Summary | Application No. 10/559,646 | Applicant(s) GOODALL ET AL. | |
| | Examiner GENNADIY MESH | Art Unit 1796 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 October 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 36-56 is/are pending in the application.
- 4a) Of the above claim(s) 36-45 and 47 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 46 and 48-56 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 27, 2008 has been entered.

Claims 1-35 canceled by Applicant. Claims 36 - 45 were previously withdrawn.

Claims 46 and 47 are amended. Claims 48 - 56 are newly added.

Election/Restrictions

1. Amended claim 47 is directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: in response to Election/Restriction requirement filed on November 9, 2007 Applicant elected Invention of Group I, claims 1 - 10 and 23 - 27 directed to Polymer binder.

Amended Claim 47 directed to different invention as **Process of applying Coating composition**, which was not originally elected.

Note, that this application contains the inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In addition to four Groups (see Office Action mailed on October 11, 2007):

Group I, claim(s) 1 - 10 and 23 - 27, drawn to Polymer binder.

Group II, claim(s) 11 and 12, drawn to Process for modifying polymer binder.

Group III, claim(s) 13 – 18 and 28 - 35, drawn to Coating composition.

Group IV, claim(s) 19 - 22, drawn to Method for improving opacity

Amended Claim 47 constitutes new Group V - **Process of applying Coating composition..**

The inventions listed as Groups I – V do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: "The cited Groups lack a special technical feature because the film-forming binder, a technical feature that is common to all the Groups, fails to define a contribution over the prior art since that polymer binder is disclosed by US 3,891,580 (see abstract, lines 14-27,column 3 and lines 17-39,column 4).

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits.

Accordingly, claim 47 is withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Therefore, Claims 46 and 48-56 are active and will examine.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 54 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention : language " a fiber selected from at least one of the plants in the group consisting essentially of " is indefinite, because group is open to indefinite number of any new members. Note, that language of Markush group has to be closed by using phrase "consisting of " - see MPEP 2111.03. In this case, claim language will be understood as " consisting of ".

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 46, 48-49 and 53 - 55 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hamill (GB 1,039,540).

Hamill discloses coating composition (see page 2,lines 20 – 60) comprising (see page 2,lines 20 - 60) at least one polymer, for example styrenic (see page 2, lines 21-30), mixture of polysaccharides and proteins, including plant gum, vegetable proteins and reactive compounds as epoxy resins and **may not have any starches**.

Regarding Claim 55 Hamill discloses that coating is liquid, preferably in form of water based latex (see page 3,lines 65-88). Note, that polysaccharides and proteins

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can be bonded to latex particles by reactive compound (epoxy resin), thus forming outside shell on core of latex particle.

It is noted that claims 53 and 54 are in format of product-by-process claim. In accordance with the applicable to the treatment of product-by-process claims (MPEP 2113), the process limitations in claims 53 and 54 have no probative value absent evidence to the contrary.

In addition note, that case law holds that "even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." See *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 46, 48 - 50 and 52 - 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamill in view of Doner et al.(US 6,147,206).

Discussion (see paragraph 3 above) with respect to Hamill incorporated herein by reference.

As stated above Hamill discloses coating composition including plant gum, but silent regarding source of plant gum.

However, Doner teach that high quality plant gum(comprising Hemicellulose B) is obtainable from corn fiber (see abstract). Doner further teach that corn fiber gum is highly soluble in water, colorless, lacks objectionable aroma and useful for variety of application, including film formation (see abstract).

Therefore, it would have been obvious to one of ordinary of skill at time of invention to use plant gum, obtained by method of Doner from corn fiber, due to it high solubility in water, colorless, odorless and film formation properties (see abstract) in composition disclosed by Hamill.

Regarding limitations of Claim 49, 50 and 54: Doner teach that protein can be present in plant gum due to stable linkage between hemicelluloses and proteins (see column 2, lines 50 – 56).

Regarding Claims 53 see Doner: abstract, Figure on Sheet 1, columns 4-8 and Examples.

5. Claims 46, 48 -50 and 52 - 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horley et al. (EP 0 949 307) in view of Doner et al.(US 6,147,206) combine with evidence given by Levine (US 2005/0148056).

Discussion with respect to Doner (see paragraph 2) incorporated herein by reference.

Horley discloses (see abstract) aqueous architectural coating composition (water based latex paint), comprising film –forming polymeric binder, wherein modified starch (

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including corn starch – see lines 24-29, page 3) grafted to chains of copolymerized ethylenically unsaturated monomers in the amount up to 50 wt.% (see claim 1).

Horley also discloses that instability of aqueous starch-containing polymeric binders can lead to phase separation and unpredictable increases of viscosities (see [0004]) , but can be resolved by subjecting starch to acid or enzymatic hydrolysis with following step of reacting with molecules comprising functional groups (see [005]).

Note, that during enzymatic hydrolysis starch will yield variety of soluble oligo- and mono- saccharides compositionally very similar to those found in corn gum, including xylose, mannose and arabinose (evidence can be found in Levine – see [0006] and [0072]).

Therefore, it would have been to one of ordinary skill at the time of the invention to use corn gum obtained by method of Doner from corn fiber, due to its high solubility in water, colorless, odorless and film formation properties (see abstract) in composition disclosed by Horley in order to obtain stable aqueous based paint without starch preparation step (as acid treatment or hydrolysis).

Regarding Claim 56 see Horley paragraph [0019].

6. Claim 56 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hamill in view of Heitzman " Colorants".

Discussion (see paragraph 3 above) with respect to Hamill incorporated herein by reference.

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Hamill discloses coating composition, comprising polymeric binder and pigments and/or fillers, specifically titanium dioxide (see page 3, lines 60 -66), but silent regarding Rutile form of Titanium dioxide.

However, Heitzman teach (see Colorants page 3, paragraph Titanium Dioxide) that:"

Titanium dioxide is the most common white of choice and by weight; it is actually the most widely used pigment. ... Its outstanding importance is due to its light scattering properties, its FDA approval, and excellent properties. ...Titanium dioxide is used in nearly all plastics to provide pastels and to adjust colors. The opacity is valued for ascetics and its ability to absorb UV radiation. **Rutile** titanium dioxide is the first choice for most plastic applications. **Anatase** titanium dioxide is less yellow, **not highly recommended for outdoor use**, blocks **less UV** radiation and is generally more reactive."

Therefore, it would have been to one of ordinary of skill use Rutile form of titanium dioxide per teaching of Heitzman in composition disclosed by Hamill due to higher stability and ability to absorb more UV radiation that Anatase form.

7. Claims 51 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamill in view of Miller et al. (US 2,822,341).

Discussion (see paragraph 3 above) with respect to Hamill incorporated herein by reference.

As it was discussed above Hamill discloses coating composition, comprising protein, but silent regarding amount of protein in composition.

However, Miller teach (see column 3, lines 7-25) that: " Most paint pigments are hydrophobic and require the presence of a dispersing agent for the production of a water dispersion of the pigments suitable for mixing with the latex. Many of the dispersing agents known to the colloid art can be utilized, including casein, soya bean protein and other animal and vegetable proteins (including albumens) capable of reacting with an alkaline material to become dispersible in water,... other water dispersible cellulose derivatives, as well as other hydrophilic colloids well known in the colloid art. Two or more dispersing agents can advantageously be used in a single paint. Typical paint pigments which are successfully incorporated with the polymer latex into a paint include titanium dioxide (the anatase or rutile grade is satisfactory), clay, silica , lithopone, mica, barium sulfate, talc and zinc sulfide." Regarding amount of protein in paint composition see lines 55-61.

Therefore, it would have been to one of ordinary of skill use vegetable protein (in amount claimed by Applicant) as pigment dispersing agent per teaching of Miller in paint coating composition disclosed by Hamill with reasonable expectation of success. I

Response to Arguments

8. Applicant's arguments filed October 27, 2008 have been fully considered but they are not persuasive.

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Applicant's arguments related to previously rejected Claim 46 under 35 U.S.C. 102(b) as being anticipated by Hamill (GB 1,039,540) based on statement that reference does not teach " that (binder) mixture contains less than 2% starch".

However, as it was stated in rejection, composition of Hamill does not require presence starch at all and for this reason satisfied limitation of Claim 46 (f) as " the mixture contains less than 2 wt.% of starch".

For this reason, Applicant's arguments were found unpersuasive.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GENNADIY MESH whose telephone number is (571)272-2901. The examiner can normally be reached on 10 a.m - 6 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272 1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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